

At the outset, it bears emphasizing that the Bell Operating Companies ("BOCs") -- which include Bell Atlantic and NYNEX -- advanced a completely different view of interconnection in urging Judge Harold H. Greene to relieve the BOCs of the restriction under the Modified Final Judgment on the BOCs' provision of interexchange service in conjunction with their respective cellular operations. In a joint filing, the BOCs vigorously rejected any suggestion that they would unfairly exploit their competitors' need for interconnection to the LECs because (1) "local interconnections are only a tiny portion of the costs of running a cellular operation"<sup>2</sup> and (2) the FCC has been "vigilant" in assuring BOC competitors of interconnection through informal negotiation and other means. Memorandum of The Bell Companies in Support of Their Motion for a Modification of Section II of the Decree to Permit Them to Provide Cellular and Other Wireless Services Across LATA Boundaries, Civil Action No. 82-0192 (D.D.C. June 20, 1994) at 9-10, 27 n.28.

As in the case of the cellular carriers' right of interconnection to the LEC, good-faith negotiations will resolve most, if not all, of the so-called complexity in the resellers' interconnection arrangements. Individualized discussions will ensure that any interconnection accounts for the particulars of each carrier's facilities and needs. Indeed, that very

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<sup>2</sup>Although the reference was to a cellular carrier's interconnection with an LEC, there is no reason to believe that any different assessment would apply in conjunction with a cellular reseller's interconnection with a cellular carrier.

real -- and likely -- benefit has prompted the Commission to endorse informal discussions among the parties as the most productive course. Cellular Communications Systems, 89 FCC2d 58, 80-82 (1982) (subsequent history omitted) (informal negotiation "provides the flexibility necessary in a dynamic technological environment such as cellular"); Cellular Interconnection Proceeding, 4 FCC Rcd 2369, 2377 n.13 (1989) (FCC staff has assisted parties "in reaching interconnection agreements" and, for that reason, the Commission encourages parties "to take advantage of this informal process prior to the filing of a complaint"). There is no reason to believe that that same process would be any less effective in implementing a cellular reseller's right of interconnection.

### **III. Resellers Need Interconnection Now**

In their petition, CSI and ComTech stated that they are prepared to interconnect their switches as soon as arrangements can be made with the cellular carriers. Petition for Reconsideration at 4, 14. The Opponents challenge that representation and argue that CSI and ComTech (as well as other resellers) should be satisfied to await the resolution of the Commission's notice of inquiry on interconnection rights to providers of commercial mobile radio services. E.g., GTE Opposition at 3; Bell Atlantic Opposition at 15; Nextel Opposition at 14.

It is not for cellular carriers -- who have an obvious interest in reducing competition from resellers -- to counsel

patience on the part of the resellers. The cellular carriers themselves were not prepared to be patient in obtaining interconnection to the LECs, and there is no reason for the cellular resellers to stand idly by in an environment which restricts the services they can provide their subscribers. This is especially so since -- notwithstanding the best efforts of the Commission and its dedicated staff -- the notice of inquiry is not likely to produce any definitive rules for at least a year and probably much longer.

CSI and ComTech reiterate that they are prepared to install a switch now if appropriate arrangements can be reached with the cellular carriers. The Commission should let the marketplace decide whether the enhanced services to be offered through such interconnection will justify the cost.<sup>3</sup>

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<sup>3</sup> McCaw contends that "the resellers have consistently failed to demonstrate the feasibility of their switch proposal" in proceedings before the California Public Utilities Commission. McCaw Opposition at 13 n.36. While that may be McCaw's view, it is certainly not the position of the California Public Utilities Commission ("PUC"). The California PUC (1) authorized the establishment of procedures "for [cellular] resellers that want to provide their own switches" and (2) concluded that "[c]ellular resellers should be allowed to acquire interconnected NXX codes on the same basis as the facilities-based carriers." Regulation of Cellular Radio Telephone Utilities, Decision 92-10-026 (Oct. 6, 1992) at 59, recon., Decision 93-05-069 (May 19, 1993) at 13.

Conclusion

WHEREFORE, in view of the foregoing and the entire record herein, it is respectfully requested that the Commission reconsider its decision in the Second Report and Order and, upon reconsideration, recognize the right of cellular resellers to interconnect switches with facilities-based cellular carriers and require parties to engage in good faith negotiations to establish interconnection arrangements in accordance with established policies.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 29<sup>th</sup> day of June, 1994, I caused a true copy of the Reply to Oppositions to Petition for Reconsideration to be served by first-class mail, postage prepaid, upon the following parties:

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EXHIBIT 3





ALJ/TRP/sid

Mailed

AUG 4 1994

Decision 94-08-022 August 3, 1994

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Investigation on the Commission's )  
Own Motion into Mobile Telephone ) I.93-12-007  
Service and Wireless Communications. ) (Filed December 17, 1993)  
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INTERIM OPINION

I. Background

On December 17, 1993, we opened an investigation of the mobile telephone service industry to develop a comprehensive regulatory framework designed to promote an orderly transition into a fully competitive marketplace while assuring that consumers are protected against unjust or unreasonable rates. In this interim opinion, we consider the threshold question of whether current market conditions for mobile telephone services protect subscribers adequately from unjust, unreasonable, or discriminatory rates, and consequently, whether continued state regulation of carriers is necessary to protect consumers.

As a result of our investigation in this proceeding, we conclude that the wholesale cellular telephone market currently remains uncompetitive. Accordingly, state regulation of cellular carriers should continue at least for the near term to protect consumers against unreasonable rates while fostering the development of a competitive mobile telecommunications market. For purposes of this interim decision, we defer full consideration and implementation of a new regulatory framework for the mobile telecommunications service market to a later decision in this proceeding. Except for limited interim measures as adopted herein, existing rules shall continue in effect pending completion of our investigation in the second phase of this Order Instituting Investigation (OII or I.) as to the appropriate regulatory framework to govern mobile telephone services. In formulating a new regulatory framework, we shall adopt provisions to gradually reduce and eventually eliminate regulation of facilities-based cellular carriers as effective competition materializes in the wholesale mobile service market.

This investigation encompasses all forms of commercial mobile telephone service provided to the public within California. In addition to cellular telephone service, our investigation includes any form of mobile communications technology that permits a user to initiate or receive calls in the form of voice or data while moving freely within a broad service area.

In this OII, we have proposed to replace the current wholesale/retail cellular regulatory structure with a regulatory framework for all mobile telephone service providers which distinguishes treatment solely based on whether a provider is classified as "dominant" or "nondominant." Firms would be considered "dominant" if they control important bottlenecks which are essential to providing mobile service to some or all of the public. All other firms which are not affiliated with dominant providers would be classified as nondominant.

Our stated objective in the OII is that regulation promote an environment in which Californians receive high quality and reasonably-priced mobile telephone services. To this end, we seek to encourage innovation which improves the quality and efficiency of service, and increases the range of choices available to satisfy the diverse needs of California consumers. Thus, a balanced regulatory approach is required which encourages competitive entry into the mobile service market while assuring effective oversight of facilities-based carriers until such competition develops. We are firmly committed to maintaining the requisite oversight to discourage firms from exercising excessive market power or attempting to defraud the public.

This investigation builds upon the industry analyses we have done previously in I.88-11-040. As stated in this OII, a number of recent developments prompt our investigation to develop a comprehensive strategy for the mobile telephone market. These developments include the impending entry of alternative service providers, the growing dependence on mobile communications by

California consumers, experience with trying to implement a monitoring of market competitiveness, and recent changes in federal law which have significantly altered federal authority over mobile services.

Significant change in federal regulation of mobile service providers was initiated with the passage of the federal Omnibus Budget Reconciliation Act of 1993 (Budget Act) on August 10, 1993. The Budget Act amends Section 332 of the Federal Communications Act of 1934 in order to create a new regulatory framework governing "commercial mobile radio service (CMRS)." On March 7, 1994, the Federal Communications Commission (FCC) issued its "Second Report and Order" (FCC Order) addressing the implementation of the 1993 Budget Act. As stated in the FCC Order, the intent of the Budget Act was to replace traditional regulation of mobile services with a comprehensive, consistent framework.

The Budget Act also grants the FCC the authority to forebear from regulation of CMRS providers, including cellular carriers. The FCC concluded in the Second Order that "the current state of competition regarding cellular services does not preclude our exercise of forbearance authority." Yet, the FCC stressed that "an important aspect of this conclusion is that we have decided to initiate a further proceeding in which we will propose to establish extensive and ongoing monitoring of the cellular marketplace as a means of ensuring the forbearance action we take in this Order does not adversely affect the public interest." (Pp. 57-58.) The Budget Act also preempts state and local rate and entry regulation of all commercial mobile radio services effective August 10, 1994, subject to the filing of a petition to retain state regulatory jurisdiction. Under Section 332 (c)(3)(B), any state with rate regulation in effect on June 1, 1993 may petition the FCC by August 10, 1994 to extend that authority based on a showing that industry market conditions fail to protect subscribers from unjust

rates, or that such service is substantially a replacement for landline exchange service.

Accordingly, we solicited evidence in this Investigation on (1) the degree of competition currently existing in urban, suburban and rural California markets for commercial mobile services; (2) whether, in each market, competitive conditions protect subscribers adequately from unjust and unreasonable rates, or rates that are unjustly discriminatory for commercial mobile services; and (3) where such market conditions exist, whether commercial mobile service is a replacement for landline telephone exchange service for a substantial portion of the telephone landline exchange service within California markets.

Based upon the results of our investigation in this OII as presented in this Interim Order, we conclude that the cellular sector of the mobile services market continues to be uncompetitive which has perpetuated unreasonably high rates. Accordingly, we shall exercise our option under federal law to file a petition to retain regulatory authority over cellular carriers for an interim period of 18 months after September 1, 1994. It is our expectation that the industry would have come under effective competitive discipline by the end of this period. Pending a final ruling on that petition, our regulatory authority over cellular carriers shall continue. Our findings and conclusions concerning the state of competition within the industry and the need for continuing regulatory oversight are set forth in Section IV. Adopted measures to implement our new regulatory framework are discussed in Section V.

## **II. Procedural Matters**

We issued our Order Instituting Investigation into Mobile Telephone Service and Wireless Communications on December 17, 1993. All regulated firms providing any form of mobile telephone service, as defined in the OII, were made respondents. An initial service list was created by incorporating the service lists from prior mobile telephone investigations/rulemakings (I.88-11-040/

forms of wireless telecommunications such as PCS and ESMR. However, cellular carriers believe that the cellular market is presently competitive, even if the market definition is limited to exclude PCS and ESMR providers as substitutes for cellular service. Even to the extent the Commission has concerns over the competitiveness of the cellular market, itself, the carriers believe that the imminent entry of PCS and ESMR providers should effectively disspell any lingering concerns over market competitiveness.

They contend that DRA and resellers are overly pessimistic in their assessment of the market obstacles facing alternative wireless service providers. Cellular Carriers Association of California (CCAC) believes that the new technologies already constitute close substitutes for cellular. Cellular carriers such as General Telephone and Electronics Corporation (GTE) also take issue with the OII in its emphasis on the cellular market to the exclusion of other substituable technologies. GTE finds this inconsistent with the OII's stated intention to treat the entire mobile services industry as a whole.

## **2. Discussion**

The potential for close substitutes for cellular service must be considered in determining how broadly to define the market. This approach is consistent with the DOJ Guidelines and parties' comments, generally. While differing on the precise criteria for definition of the market, parties' essential dispute is over whether the emerging technologies such as PCS and ESMR technologies constitute close substitutes for cellular service. The DOJ Guidelines describe substitutability as: (1) reasonable interchangeably of use to which the services can be put; and (2) the extent to which consumer preference shifts freely between the services, known as cross-elasticity of demand.

Depending on the user's needs and preferences, potential substitutes for cellular service may exist for certain limited

purposes or in limited geographical regions. For example, a paging service could be used in conjunction with a roadside payphone as a partial substitute for a cellular car phone. But such a substitute lacks the convenience features of cellular. Although ostensibly, cellular service may in limited instances be substitutable for landline telephone, pagers, or two-way mobile dispatch service, many analysts suggest these services are not generally close substitutes for cellular service, as reported by the U.S. General Accounting Office. (GAO REPORT)<sup>3</sup> Moreover, based upon the current deployment status of alternative PCS and ESMR technologies, as discussed below, we conclude that most consumers still lack good substitutes for cellular service on a widespread basis. Accordingly, we conclude that cellular service should be viewed as a separate market from other wireless telecommunications sources, at least for the present and near term future. The fact that we intend to devise a comprehensive framework for all forms of mobile service communications does not mean that we can ignore the distinctions among the various sectors of the market. Our conclusion is consistent with the March 7, 1994 FCC Order which focused on each of the various mobile services currently offered or about to be offered as a separate market.

Within the cellular market, there are several submarkets, with separate geographic boundaries, customer demand characteristics, and vendor technology capabilities. One significant cellular market trait is geographic boundaries. The geographic boundaries of each submarket are determined by the manner in which the FCC has regulated the licensing of mobile telecommunications service providers. As noted above, the FCC has

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<sup>3</sup> See July 1992 Report of U.S. General Accounting office "Concerns About Competition in the Cellular Telephone Industry," p. 21.

designated specific MSAs and RSAs within which licensees must limit their marketing. Each MSA and RSA constitutes a separate market with its differing demographic and geographic characteristics. Because of the large number of MSAs and RSAs within California, it would be unnecessarily time consuming and onerous to evaluate each one in great detail. Our concern is to reach broad conclusions that generally describe the various types of markets for mobile service communications within California. For purposes our analysis, we consider it sufficient to group cellular market areas generally into three major categories representing: (1) major metropolitan; (2) midsize; and (3) small market areas. We find that cellular markets exhibit different characteristics depending in large measure on which of these three categories they fall into.

Having developed this framework for defining the mobile services market, we shall proceed to analyze the extent of market power within the cellular market sector in the following section.

### **C. Competitiveness Within the Cellular Market**

#### **1. Dominant/Nondominant Framework**

In the OII, we have characterized the FCC licensing of only two facilities-based cellular carriers as a "duopoly." We stated therein that limited competition results from the cellular duopolists exclusive FCC license to control this radio spectrum which we characterized as a "transmission bottleneck." A bottleneck generally exists where (a) an essential facility, product or service is controlled by one firm; (b) it would be economically infeasible for any other firm to duplicate the facility, product or service; and (c) access to that facility, product or service is necessary for other firms to compete successfully. The bottleneck results from the placement of control of radio spectrum in the hands of just two facilities-based carriers per market area. We have proposed to replace our current wholesale/retail regulatory structure with a framework for all



mobile telephone service providers which encompasses all carriers treatment solely based on a dominant/nondominant market classification.

Under our framework as proposed in the OII, a firm would be classified as "dominant" if it controlled important bottlenecks essential to providing mobile services to some or all of the public, i.e., it possesses significant market power. Dominant carriers would be subject to price cap controls and unbundling of radio links from other aspects of service, as set forth in Appendix B of the OII. We defer full consideration and implementation of these measures to a later phase of this proceeding, but address certain interim implementation measures in Section V of this decision.

All other wireless telecommunications providers would be classified as non-dominant. To the extent permissible by law, we would impose only minimal or no entry or price regulation. Nondominant carriers would be subject to an informational "registration" requirement, agreeing to be bound by minimum Commission safeguards to prevent and correct fraud or misleading information. As initially proposed in the OII, the Commission would grant nondominant status to any cellular license holder that demonstrates (through the application process) that it controls no more than 25% of the cellular bandwidth in a given market. We would entertain applications for nondominant status from cellular license holders which claim to control no more than 25% of all bandwidth, including noncellular assignments, used to provide public mobile telephone service within a geographic market. We stated in the OII that we would continue this classification treatment until we made a determination that competition exists to restrain the potential exercise of dominant carriers' market power.

a. Positions of Parties

The cellular carriers dispute the validity of the dominant/nondominant dichotomy posited in the OII, and contend there is no "bottleneck" controlled by the facilities-based carriers. Since two facilities-based carriers are licensed in each service area, no single carrier may dominate the market. If a carrier seeks to raise its rates to extract monopoly rents, the competitor can intervene by offering lower rates and drawing customers away from the competitor. Cellular carriers, such as McCaw, argue that the cellular spectrum is not an essential facility from a public standpoint, in the sense that local exchange or other bottlenecks clearly are. Furthermore, cellular spectrum is not controlled by a monopoly, like a local exchange company.

The cellular carriers also disagree with the Commission's proposal to define market dominance based on the percentage of total available spectrum. Fresno MSA, for example, argues that the amount of spectrum held is somewhat irrelevant to the competitive power of an ESMR provider such as Nextel. While Nextel would be classified as nondominant under the OII's proposed criterion, it would also be able to provide the largest, seamless 100% digital coverage in southern California. Given the expanded capacity offered by digital technology, Nextel's ability to sell its services would not be constrained by the amount of spectrum it controls. Fresno further argues that new market entrants who would be defined as nondominant would themselves control "bottlenecks" (defined as facilities-based networks) to the same extent that current cellular carriers do.

While the retail customer may choose among a variety of cellular resellers, all resellers are captive to only two facilities-based cellular duopolists. Thus, on the wholesale level, the only substitute available to a given reseller is service from the other cellular duopolist. According to CRA, cellular

resellers are precluded from competing effectively with facilities-based carriers because of their lack of access to the MTSO and the ability to offer enhanced services such as voicemail. Alternative service providers also contend that cellular carriers' control over essential facilities will impede the development of market entry and penetration by new service providers.

DRA believes that the proportion of total available spectrum is only one among several measures of market dominance. Other relevant factors which DRA believes should be analyzed in assessing market power include relative market share, geographic factors, earnings, ownership of facilities by competitors, ease of market entry/exit, and relative size of competitors. DRA argues that the amount of spectrum held by any one provider is not as important as the government protection against competitive entry.

A November 1992 study of the FCC's Office of Policy and Plans<sup>4</sup> analyzed the cost structure of PCS systems to determine whether those systems were synergistic with the existing infrastructure of other telecommunications networks. The FCC study found that among various telecommunications networks, only cellular networks offered strong economies of scope in virtually all areas of PCS. Economies of scope exist between services when the costs of providing those services over one network is less than the combined cost of separate networks. Because of superior economies of scope, access to the cellular carrier infrastructure is the key to rapid build out of new PCS systems, according to CRA. The FCC study found that the fixed costs of a PCS network using very small radio cells are high in relation to the fixed costs of providing

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<sup>4</sup> See "Putting it All Together: The Cost Structure of Personal Communications Services" by David P. Reed, Office of Plans and Policy, FCC; Nov. 1992.

PCS using existing infrastructure especially at low levels of market penetration during early deployment.

MCI raises the concern that while existing cellular carriers possess the requisite market power and institutional relationships to assure access to interconnection on acceptable terms and conditions, the overwhelming majority of new mobile telecommunication service (MTS) providers possess no such advantages. CRA believes that the greatest obstacle to the build out of a new PCS system may well be the landline backhauls from the cell sites, particularly as PCS requires at least three times the number of cells for the same geographic coverage as cellular service. Without unbundling and interconnection, CRA contends that the new PCS and ESMR entrants will be severely hampered in constructing their systems.

CRA questions the theory that duopolists compete against each other, citing as an impediment the interlocking ownership relationships that pervade the duopoly market structure throughout California. Four large cellular firms affiliated with former Bell System companies and local exchange giant, GTE, collectively have formed interlocking alliances through which they compete against each other in some markets and are joint partners in others. A total of 16 MSAs are affected by interlocking ownership. For example, AT&T/McCaw Cellular Communications, Incorporated (McCaw) controls Sacramento Cellular Company which ostensibly competes with Airtouch (formerly PacTel) which controls Sacramento Valley Limited Partnership. Yet, in the San Francisco Bay Area, McCaw and Airtouch are joint partners of Bay Area Cellular Telephone Company.

**b. Discussion**

By this decision, we conclude that in light of the current state of the mobile service industry competitiveness, facilities-based cellular licensees remain dominant. We acknowledge cellular carriers argument that, by definition, cellular

carriers do not form a monopolistic bottleneck since there are two firms--not one--in each MSA. But the carriers essentially are engaging in an argument over semantics. Technically, the bottleneck is duopolistic, not monopolistic. The presence of two carriers instead of only one may serve to mitigate, but does not eliminate, the existence of a bottleneck. The evidence of market power resulting from duopolists' control of the bottleneck in the form of uncompetitive prices and excessive profits is discussed below.

We believe the pattern of interlocking ownership among major carriers provides further evidence of their lack of price competition. As noted in the OII, these arrangements might result in the sharing of pricing information in joint marketing efforts or they might blunt incentives to compete.

Other evidence of cellular carriers' market dominance is seen in the relatively small and diminishing market share of resellers compared to cellular carriers. While resellers were originally expected to enhance competition at the retail level, resellers' market share has been dwindling in the major markets in California where they had earlier made some progress at the retail level early in the late 1980s. Resellers' loss of market share is caused by several factors, including their inability to control the majority of their costs which are determined by the duopolists who control the bottleneck facilities. By keeping wholesale rates high, the duopolists make it more difficult for resellers to earn a sufficient margin to compete for business with the duopolists. The margin spread between wholesale and retail rates in the major MSAs are set forth in Appendix 3.

In the Los Angeles (L.A.) and the San Francisco Bay Area (S.F.) MSAs, the two busiest MSAs, resellers' market share has on the average declined to half of its level five years ago. At the end of 1993, resellers in the two markets combined had a little less than 20% market share, down from 35% in 1989. Resellers lost

market share at the rate of 4% each year while the cellular carriers garnered greater shares of the market.

The Los Angeles market has become more concentrated in 1993 than in 1989. In 1989, the duopolies controlled 64.6% of the cellular market. In 1991, their control increased to 76.6% and by 1993, to 86.3%. In the San Francisco MSA, the two duopolies controlled 60.6% of the market in 1989. In 1991, their control increased to 66.8%, and by 1993, to 75.3%. In the San Diego MSA, the market share of the duopolies increased from 87.3% in 1989 to 93.5% in 1993.

In response to parties' comments as to the appropriateness of our measure of control of spectrum in classifying carriers as dominant, we agree that such a measure may not be as meaningful once alternative ESMR and PCS providers become prevalent in the marketplace. For the present, however, we do not believe such alternative providers possess sufficient market power to effectively challenge cellular carriers, as discussed in Section IV.C.2. We also agree with DRA that the amount of spectrum held by a given competitor is not as relevant as the government protection against competitive entry afforded by licensing restrictions.

Consistent with the comments of various parties, we recognize that the specific proportion of the cellular bandwidth or mobile service bandwidth controlled by a given carrier is not, of itself, a definitive criteria for distinguishing dominant from nondominant providers. As such, we will subsequently consider additional criteria as a basis for reclassification to nondominant status in a separate phase of this proceeding. We may consider further revising our definition of market dominance once we determine that alternative wireless providers have begun to make meaningful inroads as a competitive challenge to cellular.

Based upon our consideration of the various measures of market power as considered in the following sections of this interim order, however, we conclude that cellular carriers clearly

qualify as dominant within our definition as used in Appendix B of the OII.

Because of the presence of bottleneck facilities, we conclude that it is essential that interconnection arrangements with landline Local Exchange Carrier (LEC) networks be instituted for all providers of wireless service to promote a competitive market. Our conclusion is consistent with FCC's findings as expressed in its recent Second Report and Order on regulation of wireless services. Therein, the FCC recognized that:

"We believe that commercial mobile radio service interconnection with the public switched network will be an essential component in the successful establishment and growth of CMRS offering... From a competitive perspective, the LEC's provision of interconnection to CMRS licensees at reasonable rates, and on reasonable terms and conditions, will ensure that commercial mobile radio service affiliates do not receive any unfair competitive advantage over other providers in the CMRS marketplace." (P. 89.)

We discuss in Section V our adopted interim procedures to promote interconnection of facilities.

## **2. Potential for Market Substitutes Other than Cellular Service**

In terms of significant substitutes for cellular, the real candidates are newly emerging telecommunications services such as PCS and ESMR. The FCC defines PCS "as a family of mobile or portable radio communications services that could provide services to individuals or business and be integrated with a variety of competing networks." ESMR enhances the traditional functions of the dispatch-type specialized mobile radio services. ESMR employs existing spectrum allocations to provide cellular or cellular-like services in radio frequencies in the 800-900 Mhz band.

Parties were in significant dispute over the likely timetable for commercial deployment of PCS. Cellular carriers

believe that PCS technologies will be developed rapidly to become a viable competitor with cellular carriers.

The cellular carriers point to newly emerging competitors such as Nextel which will offer ESMR service and PCS providers as evidence that cellular carriers can no longer be viewed as duopolists--even assuming this was a correct label before. As such, the cellular carriers contend that the impending entry of PCS and ESMR providers will effectively put an end to the alleged duopoly bottleneck since the new providers will control separate facilities and spectrum. The FCC's broadband PCS licensing order requires licensees to "offer service to one-third of the population in each market area within five years, two-thirds within seven years, and 90% within 10 years of being licensed. The FCC plans to auction 2500 broadband and 5000 narrowband PCS licenses, with between three and seven licensees per territory. The FCC has awarded a "Pioneer's Preference" license to Cox Enterprises, Inc. (Cox) for 30 MHz of PCS spectrum in southern California and Nevada, with a 20 million population.

According to resellers and DRA, PCS providers will not be able to pose a viable competitive threat to cellular carriers for five or more years because of various hurdles that PCS providers must first overcome. First is the completion of the bidding process for broadband PCS which will likely be delayed until late summer or early fall. The delay is due to more than 60 petitions filed with the FCC and the need to "work out the bugs" in the auction process in the narrowband before moving on to the broadband licensing. Another problem is spectrum congestion. The 2 GHz frequencies allocated for PCS are currently used by microwave systems. PCS users must pay the cost of negotiating with incumbent microwave users to relocate to other frequency bands. The FCC's Office of Engineering and Technology estimates a nationwide cost of \$2.7 billion for moving microwave users.



There is also uncertainty over the selection of PCS technology and the timing of its deployment. PCS infrastructure investment is projected to cost \$15-45 billion compared with \$9 billion already invested in cellular. Also, the PCS technology is untested. Industry debate continues over the preferred technology. After a technology is chosen, it will take at least a year to test and develop the PCS network. PCS providers will then have to design their systems so they can apply for construction permits. Equipment must then be procured, but present manufacturing capabilities for PCS equipment are very limited. The Personal Communication Industry estimates that PCS will only have a 3.1% penetration of the market by 1998. The FCC has proposed to require PCS licensees to offer service only to one-third of the population in a market within the first five years of the license.

Moreover, the propagation characteristics and penetration capabilities of the 2 GHz bands assigned to PCS are inferior to the 800 MHz band where cellular operates. PCS requires more cell sites and landline backhauls which increases the PCS cost relative to cellular.

MCI notes the recent pronouncements by the FCC indicating that further probable delay will occur in the potential roll-out of PCS services. FCC officials have recently indicated that major auctions for awarding PCS licenses will not take place until late 1994 or early 1995. The FCC has delayed its final consideration of specific arrangements to govern the PCS auction process such as terms under which companies may bid for a nationwide collection of frequencies.<sup>5</sup>

Respondents also offered comments as to the impact of PCS and ESMR market entry on mitigating the market share concentration

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<sup>5</sup> "FCC Discloses Rules on Auction of Airwaves" New York Times, March 9, 1994, p. D-2.